REPLY

To: Examiner of the Patent Office

1. Identification of the International Application

PCT/JP03/13074

2. Applicant

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Country of Nationality: JAPAN

Country of Residence: JAPAN

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4. Date of Notification: 02.11.2004

5. Subject Matter of Reply:

This is a reply to the second Written Opinion mailed November 2, 2004.

The Applicant has amended Claims 1 and 2 with the Amendment separately filed.

D2 discloses an experiment in which impurities are added to the

electronic grade silicon to examine an acceptable amount of impurities such as Cu, C, B and Al when used as a solar cell substrate.

In the present invention, in order to solve the problem caused by variance in resistivity and conductive type when a metallurgical grade silicon substrate contains P of 30 ppm or more, B or Al is intentionally doped in high amount, whereby an effect of P can be removed.

D2 neither discloses nor suggests that B or Al is intentionally added into the solution of metallurgical grade silicon containing P of 30 ppm or more to remove the effect of existence of P.

AMENDMENT

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4. Item to be amended: Claims

5. Subject Matter of Amendment
   Claim 1 has been further defined that the metallurgical grade silicon contains P of 30 ppm or more.

6. List of Attached Document
   1) Replacement sheets of pages 42 and 42/1

CLAIMS

1. (amended) A method of producing a polycrystalline silicon substrate for a solar cell, comprising the steps of:

performing one-direction solidification on a melt prepared by melting metallurgical grade silicon containing P of 30 ppm or more to form a polycrystalline silicon ingot;

slicing the polycrystalline silicon ingot to obtain a base; and

growing a high purity polycrystalline silicon layer on a surface of the base,

wherein the melt is prepared by adding B to molten metallurgical grade silicon at an amount of 2 $\times 10^{18}$ cm^{-3} to 5 $\times 10^{19}$ cm^{-3} based on a concentration.

2. (amended) A method of producing a polycrystalline silicon substrate for a solar cell, comprising the steps of:

performing one-direction solidification on a melt prepared by melting metallurgical grade silicon containing P of 30 ppm or more to form a polycrystalline silicon ingot;

slicing the polycrystalline silicon ingot to obtain a base; and

growing a high purity polycrystalline silicon layer on a surface of the base,

wherein the melt is prepared by adding Al to

molten metallurgical grade silicon at an amount of 1 $\times 10^{19}$ cm^{-3} to 1 $\times 10^{21}$ cm^{-3} based on a concentration.